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PASSIVE SMOKING AND LUNG CANCER IN WOMEN

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INTRODUCTION

A case-control study on smoking and lung cancer was conducted in two cities in Kanagawa prefecture Japan distinctly different in social environment (Kamakura and Miura, featured by residential community and fishery industry respectively). A significant dose-responce relationship was observed between the number of cigarettes smoked daily and the risk of lung cancer. The risk of lung cancer was significantly higher, the earlier the age at start of smoking.These results clearly explain the reason of the rapid increase in lung cancer mortality in recent years in men. The increase in lung cancer mortality in women, however, is difficult to be explained by the influence of active smoking only, because the majority of lung cancer patients are non-smokers in case of women. Therefore passive smoking has come to be suspected as the possible causative factor of lung cancer in women. Epidemiological studies thus for reported since 1981 mostly suggest such possibility (1-7). Therefore the role of passive smoking on lung cancer in women was examined in the present case-control study.

MATERIALS AND METHODS

Husbands smoking habit of 37 cases of women died of lung cancer in Kamakura and Miura (13 cases in Kamakura, 1980-1983 and 24 cases in Miura, 1973-1981) were compared with 74 cases died of cerebrovascular disease during the same period. The cases and the controls were matched to age (year of birth), year of death (± 2.5 years) and the district. Cerebrovascular disease cases were selected as controls because the disease is known to be related neither to active nor to passive smoking. Interviews were conducted by trained local public health nurses and midwives using standard questionnaires. Mantel-Haenszel odds ratio was calculated for relative risk (r.r.) with 90% confidential intervals.

RESULTS

Active smoking (direct smoking)

24.3% of women smoked in case group (smokers 9, non-smokers 28), and 16.2% smoked in control group (smokers 12, non-smokers 62), relative risk (r.r.)(M.H.odds ratio) being 1.66 (0.73-3.76).

Passive smoking (indirect smoking)

The husbands smoking status was available for 29 cases out of 37 cases and for

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54 cases out of 74 controls. Before conducting the analysis a survey was made for 133 smoking men to study how many cigarettes were smoked daily at home. The result showed that none of the smokers of less than four cigarettes a day smoked at home. Since the purpose of our study is to examine the effects of passive smoking at home, the smokers kho smoked at least five cigarettes a day were considered as "smokers at home" in the present study.

When the lung cancer risk for non-smoking women was observed according to the smoking habit of their husbands. The relative risk (r.r.)(M.H.odds ratio) was 2.25 (0.91-7.10) for non-smoking wives with smoking husbands compared to non-smoking wives with non-smoking husband. Observation by number of cigarettes smoked per day revealed that r.r. for "less than 19 cigarettes" was 1.16 (0.28-4.84)($P > 0.05$) (cases 3, cont. 11), and for "more than 20 cigarettes" 3.35 (1.17-9.67)($P = 0.051$)(cases 15, cont. 19),(chi-square value for trend 4.06 $P < 0.05$). The relative risk of lung cancer in women who themselves smoke was 4.25 (1.22-14.83) ($P = 0.059$)(cases7, cont.7). (chi-square value for trend 5.46) ($P<0.05$).

When stratified by age groups the relative risk was 1.39 (0.29-4.91) in non-smoking women with husbands smoking "less than 19 cigarettes a day". It was 3.16 (1.06-9.60) when husbands smoked "more than 20 cigarettes a day", chi-square value for trend being 3.90 ($P < 0.05$). r.r. (M.H.odds ratio) for "smoking women" was 4.73 (1.22-15.35)($P < 0.05$). The chi-square value for trend including smoking women was 5.48 ($P<0.05$).

When both age groups and districts were stratified, r.r. (M.H.odds ratio) was 2.58 (0.44-5.70) when husbands smoked "less than 19 cigarettes" and 3.09 (1.04-11.81) when husbands smoked "20 or more cigarettes daily". The chi-square value for trend was 4.25 ($P<0.05$). The relative risk for smoking women was 5.50 (1.06-17.30). The chi-square value for trend including smoking women was 5.17 ($P<0.05$).

DISCUSSION

A case-control study on passive smoking and lung cancer in women was conducted in two cities distinctly different with regard to social environment. When both districts (social environment) and age group were stratified, relative risk of lung cancer in non-smoking wives was shown to be 2.58 when husbands smoked "less than 19 cigarettes a day" and 3.09 when husbands smoked "20 or more cigarettes a day". The relative risk of active smoking (direct smoking) was 5.50 which was higher than the effect of passive smoking. Although study size is quite small,the present study might to considered to provide an another evidence favoring the passive smoking and lung cancer hypothesis. Smoking at home shuld therefore be restricted strictly in oder to prevent non-smoking family members from suffering unnecessarily from lung cancer and other selected diseases.

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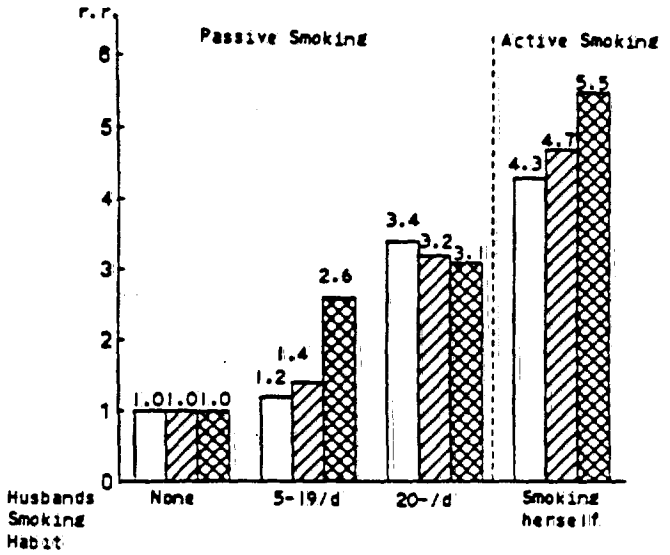

Chi-square for trend

	passive smoking	including active smoking
crude	4.06	5.46
age stratified	3.90	5.48
age-district stratified	4.20	5.17

Fig. Relative Risk for Lung Cancer in Non-smoking Wives by Husbands Smoking Habit
(A case-control study, Kamakura and Miura, Kanagawa prefecture, Japan)

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